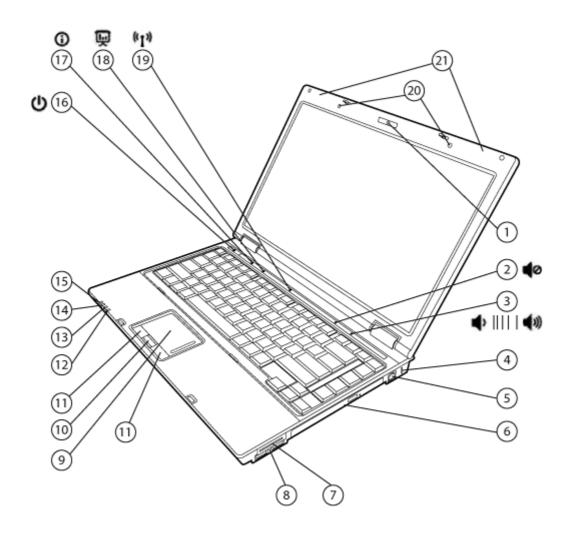
Overview

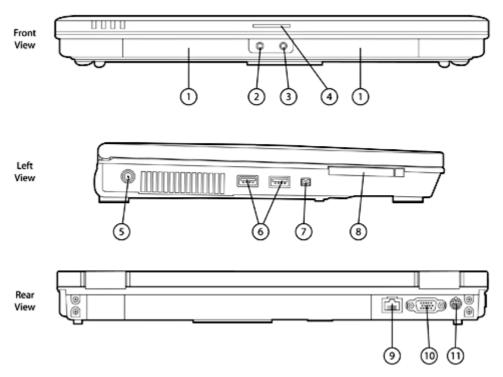


- 1. Optional VGA webcam
- 2. Volume mute button with LED indicator
- 3. Volume scroll zone with up/down LED indicators
- 4. Kensington Lock slot
- 5. RJ-11/modem port
- 6. Optical drive/Upgrade Bay
- 7. Media Card Reader
- 8. (2) USB 2.0 ports
- 9. Touchpad with scroll zone
- 10. Optional HP Fingerprint Sensor
- 11. Touchpad buttons

- 12. Hard drive activity / HP 3D DriveGuard LED indicator
- 13. Battery charging LED indicator
- 14. Power/standby LED indicator
- 15. Wireless on/off LED indicator
- 16. Power button with LED indicator
- 17. HP Info Center/ HP QuickLook 2 button with LED indicator
- 18. HP Presentation button with LED indicator
- 19. Wireless on/off button with LED indicator
- 20. Integrated microphone (dual-microphone array with webcam)
- 21. WLAN and WWAN antennas (select models)

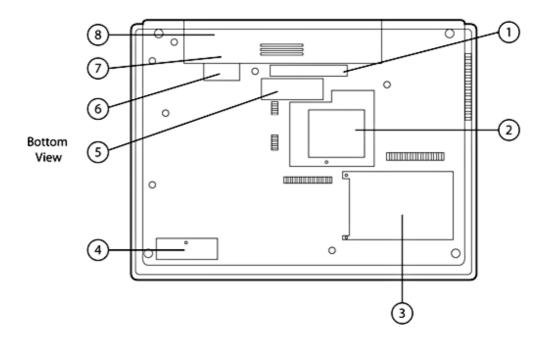


Overview



- 1. Stereo speakers
- 2. Stereo headphone/line out
- 3. Stereo microphone in
- 4. Display release latch
- 5. Power connector
- 6. (2) USB 2.0 ports

- 7. 1394a port
- 8. ExpressCard/54 slot or optional Smart Card Reader
- 9. RJ-45/Ethernet port
- 10. VGA/external monitor connector
- 11. S-Video TV out



Overview

- 1. Docking connector
- 2. WLAN module compartment (select models)
- 3. Hard drive bay
- 4. Bluetooth module compartment

- 5. Secondary battery connector
- 6. SIM slot for WWAN (select models) inside battery bay
- 7. Battery release latch
- 8. Battery bay

At A Glance

- Genuine Windows 7 Professional, Genuine Windows XP Professional available through downgrade rights
 from Windows 7 Professional, Genuine Windows 7 Home Premium, Genuine Windows 7 Home Basic,
 Genuine Windows Vista Business 32, Genuine Windows Vista Home Basic 32,
 Genuine Windows XP Professional available through downgrade rights from Windows Vista Business or FreeDOS
- Widescreen 14.1-inch diagonal display with optional BrightView and HP Privacy Filter support
- Intel® Core™2 Duo processor
- Thin, lightweight design starting at 5.31 lb/2.41 kg and 1.28 inch/32.6 mm thin at front
- Upgrade Bay for easy optical drive upgrade or optional second hard drive
- Flexible wireless connectivity options:
 - O Integrated HP un2400 EV-DO/HSPA Mobile Broadband Module provides worldwide Gobi mobile Internet technology
 - O Integrated 802.11 a/b/g/n draft 2.0 or b/g wireless LAN module
 - O Bluetooth® 2.0
- Enhanced security features including HP ProtectTools, HP SpareKey, TPM 1.2;* optional Smart Card Reader and HP Fingerprint Sensor
- Optional integrated VGA webcam with dual-microphone array
- HP QuickLook 2 for instant access to e-mail, calendar, and contact information
- Up to 500 GB 5400 rpm or 320 GB 7200 rpm user-removable hard drive with HP 3D DriveGuard protection
- Enhanced reliability with magnesium alloy support structure and HP DuraFinish
- Touch-sensitive controls for HP Info Center/HP QuickLook 2, HP Presentation button, wireless on/off, mute, and volume up,
 volume down
- Media Card Reader
- Up to 8 GB of 800 MHz DDR2 SDRAM supported, dual-channel memory support
- Mobile Intel Graphics Media Accelerator 4500MHD
- Broadcom NetLink Gigabit Ethernet Controller (10/100/1000 NIC)
- Touchpad with scroll zone



^{*} TPM module disabled where not permitted by law (for example, Russia and China).

Standard Features

Processors

Intel Core 2 Duo Processor T9900 (3.06 GHz, 6 MB L2 cache, 1066 MHz FSB)*
Intel Core 2 Duo Processor T9600 (2.80 GHz, 6 MB L2 cache, 1066 MHz FSB)*
Intel Core 2 Duo Processor T9400 (2.53 GHz, 6 MB L2 cache, 1066 MHz FSB)*
Intel Core 2 Duo Processor P8800 (2.66 GHz, 3 MB L2 Cache, 1066 MHz FSB)*
Intel Core 2 Duo Processor P8700 (2.53 GHz, 3 MB L2 cache, 1066 MHz FSB)*
Intel Core 2 Duo Processor P8600 (2.40 GHz, 3 MB L2 cache, 1066 MHz FSB)*
Intel Core 2 Duo Processor P8400 (2.26 GHz, 3 MB L2 cache, 1066 MHz FSB)*
Intel Celeron Dual-Core Processor T3100 (1.9 GHz, 1 MB L2 cache, 800 MHz FSB)*
Intel Celeron Dual-Core Processor T3000 (1.8 GHz, 1 MB L2 cache, 667 MHz FSB)*
Intel Celeron Dual-Core Processor T1700 (1.86 GHz, 1 MB L2 cache, 667 MHz FSB)*
Intel Celeron Dual-Core Processor T1600 (1.66 GHz, 1 MB L2 cache, 667 MHz FSB)*

* Intel's numbering is not a measurement of higher performance.

NOTE: Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.

Operating System

Preinstalled Genuine Windows 7 Professional*

Genuine Windows XP Professional available through downgrade rights

from Windows 7 Professional*†
Genuine Windows 7 Home Premium*
Genuine Windows 7 Home Basic*
Genuine Windows Vista Business**
Genuine Windows Vista Home Basic**

Genuine Windows XP Professional available through downgrade rights

from Windows Vista Business **†† Genuine Windows Vista Ultimate Red Flag Linux (China only)

FreeDOS

Supported Genuine Windows 7 Professional*

Genuine Windows 7 Enterprise*
Genuine Windows 7 Ultimate*
Genuine Windows Vista Business**
Genuine Windows Vista Enterprise**
Genuine Windows Vista Ultimate**
Genuine Windows XP Professional

Certified SuSE Linux Enterprise Desktop 10



^{*} System may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See: http://www.microsoft.com/windows/windows-7/ for details.

^{**} Certain Windows Vista product features require advanced or additional hardware. See: http://www.microsoft.com/windowsvista/getready/hardwarereqs.mspx and http://www.microsoft.com/windowsvista/getready/capable.mspx for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit: http://www.windowsvista.com/upgradeadvisor.

[†] Windows XP Professional is preinstalled on this system and includes end user rights and media for

Standard Features

Windows 7 Professional. You may only use one version at a time. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

†† Windows XP Professional is preinstalled on this system and includes end user rights and media for Windows Vista Business. You may only use one version at a time. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

Chipset Intel GE45 Express Chipset with ICH9M

NOTE: This chipset is equivalent to the Intel GM45 Express Chipset, with the addition of support for S-

video.

Graphics Mobile Intel Graphics Media Accelerator 4500MHD

Microsoft DirectX 10 capable

Display Internal 14.1-inch diagonal WXGA anti-glare (1280 x 800 resolution)

14.1-inch diagonal WXGA BrightView (1280 x 800 resolution)

14.1-inch diagonal WXGA+ anti-glare (1440 x 900 resolution)

HP Privacy Filter support

External Up to 32-bit per pixel color depth

VGA port supports resolutions up to 2048 x 1536 at 75 Hz, and lower

resolutions at up to 100 Hz

DVI-D (single link) video signal available through DVI port in optional HP

Docking Station (sold separately)

supports resolutions up to 1600 x 1200 at both full and reduced

blanking, and 1920 x 1200 at reduced blanking

NOTE: Resolutions are dependent upon monitor capability, and resolution

and color depth settings.

Memory Standard 800 MHz DDR2 SDRAM; two slots supporting dual channel memory

1024 MB, 2048 MB, or 4096 MB

Maximum Upgradeable to 8192 MB with 4096 MB SODIMMs in slots 1 and 2

Dual-channel Maximized dual-channel performance requires SODIMMs of the same size

and speed in both memory slots.

NOTE: Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed. Full availability of 4 GB or more of memory requires Windows Vista Business 64-bit or Linux. With Windows 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource

requirements.



Standard Features

Communications

Integrated Broadcom NetLink Gigabit Ethernet Controller (10/100/1000 NIC)* 56K V.92 modem**

- * The term "10/100/1000" or "Gigabit" Ethernet indicates compliance with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.
- ** Designed for downloads from 56K modem compliant sources. Maximum achievable download transmission rates currently do not reach 56 KB/s, and will vary with line conditions. Modem availability is subject to country regulatory approval.

Wireless Devices

Support for a broad range of secure, integrated wireless LAN and wireless WAN options featuring support for the latest industry standards. Wireless LAN is factory configurable or available as an option to be added later. Broadband Wireless (WWAN) requires Windows Vista Business or Windows XP Professional and is available in select countries as a standard, factory configurable feature only. Integrated Bluetooth is also available (factory configurable only) and can be combined with any of the supported wireless LAN and wireless WAN options.

HP un2400 EV-DO/HSPA Integrated WWAN module with Gobi global mobile Internet technology that provides worldwide connection to both CDMA (EVDO) and UMTS (HSPA)

Mobile Broadband

Module

wireless networks.

NOTE: Separately purchased mobile network operator service is required. Two 850/900/1800/1900/2100 MHz antennas integrated in the top of the

display panel support current and future WWAN technologies.

All 802.11 integrated wireless LAN options

Wi-Fi Certified*

Cisco Compatible Extensions support

Wired Equivalent Privacy (WEP) support up to 128-bit keys

Wi-Fi Protected Access (WPA) and WPA2 support

802.1x authentication support, including EAP-TLS, EAP-TTLS, PEAP-GTC,

PEAP-MSCHAPv2, and LEAP

Advanced Encryption Standard (AES) support Dual antennas integrated in the display enclosure

Intel WiFi Link 5100 Integrated support for 802.11 a, b g, and n draft 2.0*

Up to 300 mbps data rate

Broadcom 4322AGN 802.11a/b/g/draft-n WiIntegrated support for 802.11a, b, g, and n draft 2.0*

Up to 300 mbps data rate

Fi Adapter

Broadcom 4312G

Integrated support for 802.11 b and a

Up to 54 mbps data rate

802.11b/g

WiFi Adapter

Bluetooth Specification v2.0 compliant

HP Integrated Module with Bluetooth Wireless

Works with a wide range of Bluetooth devices

Technology



^{*} The specifications for 802.11n draft 2.0 are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11n WLAN devices. In countries where n draft 2.0 is not allowed, this capability is not enabled (Intel 802.11a/b/g only).

Standard Features

Keyboard

The 101/102-key compatible keyboard features an industry standard, full-pitch key layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, and 12 function keys. U.S. and International key layouts are available. Other features include an integrated numeric keypad, hotkeys for instant access to power conservation, brightness, and other features, 19 mm x 19 mm key pitch (center-to-center spacing), 2.5 mm stroke, and comfort-dished keycaps.

Touch-sensitive controls

Touch-sensitive controls provide easy access to the following features: HP Info Center, HP QuickLook 2, HP Presentation button, wireless on/off, mute, and volume up, volume down

Pointing device

Touchpad with scroll zone, two pick buttons

Expansion card slots

ExpressCard/54 slot

Supports ExpressCard/54 and ExpressCard/34

or

Optional Integrated Smart Compatible with ISO 7816 compliant Smart Cards

Card Reader (replaces ExpressCard/54 slot)

PC/SC interface support

Media Card Reader

Supports SD (Secure Digital), HC-SD (High Capacity Secure Digital), MMC (MultiMedia Card), HS-MMC (MultiMedia Card Plus), Sony Memory Stick,

Sony Memory Stick Pro, xD-Picture card

Additionally, the following cards are supported via passive adapters (sold separately): Mini-Secure Digital (Mini-SD), Transflash (Micro-SD), Reduced size Multimedia card (RS-MMC), Reduced size Dual voltage Multimedia card, MMC Mobile Cards, MMC Micro Cards, Memory Stick Duo (MS Duo)*, Memory Stick Duo Pro (MS Duo Pro)*, Memory Stick M2 Micro

* Memory Stick Duo Adapters are required and sold separately. Inserting a Memory Stick Duo Card directly into your notebook could damage the memory card and/or notebook.

Storage

Hard drives

120/160/250/320/500 GB 5400 rpm SMART SATA II

160/250/320 GB 7200 rpm SMART SATA II

NOTE: These hard drives are customer removable and will withstand multiple insertion/removal cycles. Up to 10 GB is reserved for the system recovery software.

HP 3D DriveGuard

The hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive. Uses three-axis digital motion detection with intelligent sensitivity to help protect the hard drive during normal use from shock and vibration. The digital accelerometer temporarily halts all data transfer and parks the hard drive when abrupt motion is

detected.

Upgrade Bay

Fixed 12.7 mm SATA optical drive

DVD+/-RW SuperMulti DL LightScribe Drive

DVD/CD-RW Combo Drive

DVD-ROM Drive

Second hard drive

250 GB 5400 rpm SMART SATA II Hard Drive



Standard Features

Interfaces ExpressCard/54 slot One (or optional Smart Card Reader)

External monitor One (VGA)

1394a One Stereo microphone in One Stereo headphone/line One

out

Power connector One RJ-11/modem One RJ-45/Ethernet One

S-video TV out

One (Support for NTSC/PAL)

USB 2.0 Four

Docking connector One
Secondary battery One

connector

Audio/Visual High Definition Audio support w/24-bit DAC

Integrated stereo speakers

Integrated microphone (dual-microphone array when equipped with optional VGA webcam)

Touch-sensitive controls for volume up, volume down, and mute

Stereo headphone/line out Stereo microphone in

Optional VGA webcam

• Supports videoconferencing and still image capture

• Up to 30 frames/sec

• Fixed focus lens

• Video capture up to 640x480 pixels

16-bit true color (camera sensors output YCrCb format among others)

Software

Preinstalled software with HP Recovery Manager (Vista only)
Windows Vista or HP Help and Support Center

Windows XP HP QuickLook 2

HP Universal Print Driver

HP ProtectTools Security Manager:

BIOS Configuration for HP ProtectTools Credential Manager for HP ProtectTools

Device Access Manager for HP ProtectTools

Drive Encryption for HP ProtectTools Embedded Security for HP ProtectTools

HP Quick Launch Buttons HP Wireless Assistant

Microsoft Office Ready with 60-day Office Professional 2007 Trial Edition

(select models) PDF Complete SE

Intervideo WinDVD – DVD Player

Roxio Creator Business (for optional DVD+/-RW and DVD/CDRW drives)



Standard Features

McAfee Total Protection* Synaptics Touchpad Driver

Microsoft Windows Live Messenger (select models) HP Webcam Software (with optional VGA webcam)

Additional software available from the web

HP SoftPaq Download Manager
HP Client Manager Software
HP Client Management Solutions
Java Card Security for HP ProtectTools

* 60 day trial period for McAfee Total Protection for Small Business software. Internet access required to receive updates. First update included. Subscription required for updates thereafter.

HP Recovery Manager (Vista only)

Each unit is shipped with HP Recovery Manager. HP Recovery Manager enables fast recovery of the factory preinstalled image if the system becomes corrupted or if important system files are accidentally deleted. Up to 10 GB of the hard drive is reserved for the system recovery software.

SMBIOS Version 2.4

System Management BIOS, previously known as DMI BIOS, is used to store system management information.

HP ProtectTools Security Manager

HP ProtectTools Security Manager is the security platform for business notebooks and desktops. The HP ProtectTools Security Manager is an extensible client security console that delivers enhanced security capabilities through add-on software modules. Modules currently available are:

- BIOS Configuration for HP ProtectTools
- Credential Manager for HP ProtectTools
- Device Access Manager for HP ProtectTools
- Drive Encryption for HP ProtectTools
- File Sanitizer for HP ProtectTools
- Set-up Wizard for HP ProtectTools
- Privacy Manager for HP ProtectTools (Chat & Sign)
- Embedded Security for HP ProtectTools
- Java Card Security for HP ProtectTools



Standard Features

Security Standard Features HP ProtectTools Security Manager

Enhanced Pre-Boot Security

HP SpareKey One-Step Logon

Configuration Control Hardware

Memory Change Alert Ownership Tag Setup Password Power-On Password

TPM 1.2 Embedded Security Chip*

TPM Enhanced DriveLock*

HP Disk Sanitizer HP 3D DriveGuard Kensington Lock slot

Support for Computrace / LoJack for Laptops (must be purchased

separately)

Optional Features Smart Card Reader Compatible with ISO 7816 compliant Smart

(replaces ExpressCard/54 Cards

slot) PC/SC interface support

HP Fingerprint Sensor Enhanced sensor scans the fingerprint to uniquely

identify and authenticate a person.

HP Privacy Filter Narrows viewing area so that screen data is

visible only to persons directly in front of the

monitor

* TPM module disabled where use is restricted by law; for example, Russia and China. For more information on HP security solutions refer to: http://www.hp.com/go/security.

Power Supply External 65-watt Smart AC adapter, 6-foot (1.8 meter) power cord included.

Total length including external AC adapter is 12 feet (3.66 meter).

HP Fast Charge*

*HP Fast Charge recharges your battery up to 90% within 90 minutes when the system is off. HP Fast

Charge does not apply to 12-cell Ultra-Capacity batteries or the HP Long Life Battery.

Battery Primary battery 6-cell (55 WHr) Li-lon battery

6-cell (47 WHr) Li-Ion battery

Optional HP Extended

Life Battery

8-cell (52 WHr) high capacity Li-lon battery

Optional HP Ultra-

Capacity Battery

12-cell (95 WHr) high capacity Li-lon battery



Standard Features

Battery Life 6-cell (55 WHr) Primary 6-cell (47 WHr) Primary

Primary battery Up to 6 hours and 15 minutes Up to 5 hours

Primary battery and Up to 12 hours and 30 minutes Up to TBD hours

optional HP Extended Life

Battery

Primary battery and Up to 16 hours and 30 minutes Up to TBD hours

optional HP Ultra-Capacity Battery

NOTE: The listed battery life measurements were taken on models running Microsoft Windows XP Professional. Battery life will vary depending on the product configuration, product model, applications loaded on the product, power management settings of the product, and the product features used by the customer. As with all batteries, the maximum capacity of this battery will decrease with time and usage.

System Standby Time Up to 1 week

Power Conservation Supports enhanced Intel SpeedStep technology with Intel Core 2 Duo processors (allows Battery

Optimized Mode, Maximum Performance Mode, or Automatic mode)

Intel Display Power Saving technology

Hibernation Standby

ACPI compliance

Docking and Stands HP 2008 120W Docking Station

HP 2008 150W Docking Station

HP 2008 150W Advanced Docking Station HP 2008 180W Advanced Docking Station

HP Mobile Port Replicator

HP Monitor Stand

HP Adjustable Notebook Stand

HP Dual Monitor Stand

HP's shared docking solutions provide simple and convenient port replication and cable management. Features include Gigabit NIC pass through, modem pass through, legacy parallel and serial ports, S-video TV out, USB 2.0 ports, integrated security mechanism*, integrated MultiBay II and ExpressCard** slots. These docking solutions are compatible across multiple Business Notebook platforms enabling a lower total cost of ownership.

* HP/Kensington Cable Lock required (purchased separately)

** HP Advanced Docking Station only



Standard Features

Service and Support

HP Services offers limited 3-year, 1-year and 90-day warranty options depending on country; 1-year limited warranty on primary battery. On-site service and warranty upgrades are also available. HP Care Pack Services extend service contracts beyond the standard warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: http://www.hp.com/go/lookuptool. Additional HP Care Pack Services information by product is available at: http://www.hp.com/hps/carepack.

NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details. http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp.



Options		
Memory	HP 1 GB (DDR2 800 MHz) SODIMM	KT292AA
	HP 2 GB (DDR2 800 MHz) SODIMM	KT293AA
	HP 4 GB (DDR2 800 MHz) SODIMM	KT294AA
Storage	HP Notebooks USB Diskette Drive	DC361B
_	HP Primary SATA 120 GB 7200 rpm Hard Drive	AH920AA
	HP Primary SATA 250 GB 5400 rpm Hard Drive	AK072AA
	HP Upgrade Bay SATA 250 GB 5400 rpm Hard Drive	AK868AA
	HP Upgrade Bay SATA DVD+/-RW SuperMulti DL LightScribe Drive	AK869AA
	HP Primary SATA 120 GB 5400 rpm Hard Drive	RT080AA
MultiBay II Storage (9.5-mm)	HP MultiBay II DVD-ROM Drive	PA849A
NOTE: Requires HP Advanced Docking Station or HP External MultiBay II	HP MultiBay II DVD+/-RW SuperMulti DL Drive	PA851A
Expansion Solutions	HP 2008 120W Docking Station	KP080AA#ABA
	HP 2008 150W Docking Station	KQ751AA#ABA
	HP 2008 150W Advanced Docking Station	KP081AA#ABA
	HP 2008 180W Advanced Docking Station	KQ752AA#ABA
	HP Mobile Port Replicator	AK155AA
	HP Monitor Stand	PA507A
	HP Adjustable Notebook Stand	PA508A
	HP Dual-Monitor Stand	AK084AA
	HP External MultiBay II	PA509A#ABA
Communications	Intel® WiFi Link 5300	KM591AA#ABA



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\cup	ntions.	

HP 1-Bay Battery Charging Station	RW635AA#ABA
	RW636AA#ABA
	KV829AA
•	ED495AA#ABA
·	AJ652AA#ABA
·	KU531AA
	PB993A
•	EJ092AA
	AJ359AA
,	AU213AA
	ED493AA
HP 65W AC/Auto/Air Combo Smart Adapter	ED993AA#ABA
HP Basic Carrying Case	AJ078AA
HP Value Nylon Case	RR314AA
HP Universal Nylon Case	RR315AA
HP Executive Leather Case	RR316AA
HP Deluxe Nylon Backpack	RR317AA
HP Deluxe Roller Case	GD405AA
HP ExpressCard Smart Card Reader with Java Card	AJ451AA
HP ProtectTools Java Card – 10 units	EL348AA
HP/Kensington MicroSaver Security Lock	PC766A
HP 14.1" Display Privacy Filter	AJ357AA
HP PS/2 Keyboard & Mouse Bundle	RC464AA#xxx
HP USB Keyboard & Mouse Bundle	RC465AA#xxx
HP USB/PS2 Optical 2-Button Scroll Mouse	DC369A
The Obb/132 Ophical 2-bollon Scion Moose	D 600771
	HP Basic Carrying Case HP Value Nylon Case HP Universal Nylon Case HP Executive Leather Case HP Deluxe Nylon Backpack HP Deluxe Roller Case HP ExpressCard Smart Card Reader with Java Card HP ProtectTools Java Card – 10 units HP/Kensington MicroSaver Security Lock HP 14.1" Display Privacy Filter HP PS/2 Keyboard & Mouse Bundle HP USB Keyboard & Mouse Bundle



Memory

800 MHz DDR2 SDRAM

Two DIMM slots supporting dual-channel memory

DIMM sizes supported: 1024 MB, 2048 MB, and 4096 MB

Standard Memory

- 1024 MB (1024 MB x 1)
- 2048 MB (2048 MB x 1 or 1024 MB x 2)
- 3072 MB (2048 MB 1024 MB)
- 4096 MB (2048 MB x 2)

Optional Memory Upgrades

Support for up to 8192 MB of memory with the installation of optional DDR2 SDRAM memory kits. Both memory slots are user-accessible. Please refer to the Hardware and Software Guide for installation procedures. Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

Up to	Slot 1	Slot 2
1024 MB	1024 MB	Empty
2048 MB	2048 MB	Empty
2048 MB	1024 MB	1024 MB
3072 MB	2048 MB	1024 MB
4096 MB	2048 MB	2048 MB
8192 MB	4096 MB	4096 MB

NOTE: This chart does not represent all possible memory configurations. Due to the non-industry standard nature of some third-party memory modules, we strongly recommend using only HP- branded memory modules to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed. Full availability of 4 GB or more of memory requires Windows Vista Business 64-bit or Linux. With Windows 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource requirements.

Memory Upgrades

 HP 1 GB (DDR2 800 MHz) SODIMM
 KT292AA

 HP 2 GB (DDR2 800 MHz) SODIMM
 KT293AA

 HP 4 GB (DDR2 800 MHz) SODIMM
 KT294AA



Storage

Upgrade Bay Drive Support

	Quantity Supported	Drive Bay
DVD+/-RW SuperMulti DL LightScribe Drive	One	Upgrade Bay
DVD/CD-RW Combo Drive	One	Upgrade Bay
DVD-ROM Drive	One	Upgrade Bay
250 GB 5400 rpm SMART SATA II Hard Drive	One	Upgrade Bay

Internal Storage Device

	Quantity Supported	Drive Bay
Hard Drives		
500 GB 5400 rpm SMART SATA II Hard Drive	One	Dedicated hard drive bay
320 GB 5400 rpm SMART SATA II Hard Drive	One	Dedicated hard drive bay
250 GB 5400 rpm SMART SATA II Hard Drive	One	Dedicated hard drive bay
160 GB 5400 rpm SMART SATA II Hard Drive	One	Dedicated hard drive bay
120 GB 5400 rpm SMART SATA II Hard Drive	One	Dedicated hard drive bay
320 GB 7200 rpm SMART SATA II Hard Drive	One	Dedicated hard drive bay
250 GB 7200 rpm SMART SATA II Hard Drive	One	Dedicated hard drive bay
160 GB 7200 rpm SMART SATA II Hard Drive	One	Dedicated hard drive bay



Technical Specifications

System Unit Dimensions (HxWxD) 1.28 in (at front) x 13.18 in x 9.56 in

32.6 mm (at front) x 334.8 mm x 242.8 mm

Weight Starting at 5.31 lb (2.41 kg)

NOTE: Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components. Weight includes 6-cell battery, hard drive, and optical drive. Weight varies by configuration and components.

Stand-Alone Power Nominal Operating 18.5 V

Requirements (AC Power) Voltage

> Average Operating Power 20.0 W < 90 W Max Operating Power

Temperature Operating 32° to 95° F (0° to 35° C) (not writing optical)

41° to 95° F (5° to 35° C) (writing optical)

 -4° to 140° F (-20° to 60° C) Non-operating 10% to 90%, non-condensing Relative Humidity Operating

> 5% to 95%, 101.6° F (38.7° C) maximum wet Non-operating

> > bulb temperature

Shock 125 G, 2 ms, half-sine Operating

200 G, 2 ms, half-sine Non-operating

Random Vibration Operating 0.75 grms

1.50 grms Non-operating

-50 to 10,000 ft (-15.24 to 3,048 m) Altitude Operating (unpressurized) Non-operating -50 to 40,000 ft (-15.24 to 12,192 m)

Industry Standard Certifications

UL Yes **CSA** Yes FCC Compliance Yes

ENERGY STAR® Yes, with Intel Core 2 Duo processor*

Yes

EPEAT Gold** **ICES** Yes GS Yes Yes Australia / NZ A-Tick

Compliance

CCC Yes Japan VCCI Compliance Yes MIC Yes **BSMI** Yes CE Marking Compliance Yes **BNCI or BELUS** Yes CIT Yes **GOST** Yes

Saudi Arabian Compliance (ICCP)

SABS Yes

Technical Specifications

UKRSERTCOMPUTER Yes

- * Configurations of the HP Compaq 6530b that are ENERGY STAR qualified are identified as HP Compaq 6530b ENERGY STAR on HP websites and on www.energystar.gov.
- ** EPEAT registration varies by country. See www.epeat.net for registration status by country. EPEAT status listed above applies to U.S.

For accessibility information on HP products, please visit: http://www.hp.com/accessibility.

HP 65W	Smart AC
Adapter	

Dimensions 4.17 x 1.85 x 1.1 in (10.6 x 4.7 x 2.8 cm)

 Weight
 0.62 lb (280 g)

 Input
 100 to 240 VAC

Input Efficiency 83% min at 115 VAC

Input frequency range 47 to 63 Hz

Input AC current 1.7 A at 90 VAC, 0.85 A at 180 VAC

Output Output power 65W 65W

DC output 18.5V

Hold-up time 5 msec at 115 VAC inputOutput current limit <11A, Over voltage protection- 29V max

automatic shutdown

Connector 3 pin/grounded, mates with interchangeable cords
Environmental Design Operating temperature 32° to 104° F (0° to 40° C)

Non-operating (storage) -4° to 149° F (-20° to 65° C)

temperature

Altitude 0 to 10,000 ft (0 to 3,048 m)

Humidity 20% to 80% Storage Humidity 10% to 90%

EMI and Safety Certifications CE Mark – full compliance with LVD and EMC directives; Worldwide safety standards – IEC60950, EN60950, UL60950, Class1, SELV; Agency

approvals – C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; MTBF – over 200,000 hours at

25°C ambient condition.

Technical Specifications

Optional HP Ultra-Capacity Battery

Battery

Dimensions (H x W x L) 1.3 x 6.0 x 10.6 in (3.33 x 15.25 x 26.88 cm)

Weight 1.77 lb (0.803 kg)
Cells/Type 12-cell Li-lon

Energy Watt-hour Capacity 95 WHr

TemperatureOperating (Charging)
32° to 113° F (0° to 45° C)
Operating (Discharging)
14° to 140° F (–10° to 60° C)

Non-operating -4° to 140° F (-20° to 60° C)

Battery Re-Charge Time Smart Adapter 3 to 4 hours

System ON 4 to 5 hours (depending on system power

consumption)

Fuel Gauge When pressed, LEDs light indicating level of charge remaining on battery

 $1.0 \times 3.9 \times 8.7$ in $(2.5 \times 10.0 \times 22.0 \text{ cm})$

Optional HP Extended Life Dimensions (H x W x L)

Weight

1.00 lb (0.455 kg)

Cells/Type 8-cell Li-lon

Energy Watt-hour Capacity 52 WHr

Temperature Operating (Charging) 32° to 113° F (0° to 45° C)

Operating (Discharging) 14° to 140° F (-10° to 60° C) Non-operating -4° to 140° F (-20° to 60° C)

Battery Re-Charge Time System in OFF mode or 3 hours

Standby

System ON 3 to 5 hours (depending on system power

consumption)

HP Fast Charge Charges the battery up to 90% within 90 minutes

Technology when system is OFF

Fuel Gauge When pressed, LEDs light indicating level of charge remaining on battery

6-Cell (55 WHr) Li-lon battery

Dimensions $(H \times W \times L)$

0.8 x 2.1 x 8.0 in (2.0 x 5.3 x 20.3 cm)

Weight

0.737 lb (0.335 kg)

Cells/Type

6-cell Li-lon

Energy

Watt-hour Capacity 55 WHr

Temperature Operating (Charging)

32° to 113° F (0° to 45° C)

Operating (Discharging)

14° to 140° F (-10° to 60° C)

Non-operating

 -4° to 140° F (-20° to 60° C)

Battery Re-Charge Time System in OFF mode or

2.5 hours

Standby

System ON

3 to 5 hours (depending on system power

consumption)

HP Fast Charge

Charges the battery up to 90% within 90 minutes

Technology when system is OFF



Technical Specifications

6-Cell (47 WHr) Li-lon battery

Dimensions $(H \times W \times L)$

 $0.8 \times 2.1 \times 8.0$ in $(2.0 \times 5.3 \times 20.3 \text{ cm})$

Weight

0.715 lb (0.325 kg)

Cells/Type

6-cell Li-lon

Energy

Watt-hour Capacity Operating (Charging)

32° to 113° F (0° to 45° C)

Temperature

Operating (Discharging)

14° to 140° F (-10° to 60° C)

Non-operating

 -4° to 140° F (-20° to 60° C)

Battery Re-Charge Time

System in OFF mode or

2.5 hours

47 WHr

Standby

System ON

3 to 5 hours (depending on system power

consumption)

HP Fast Charge

Charges the battery up to 90% within 90 minutes

Technology

when system is OFF

Displays

14.1-inch WXGA antiglare

Active Area (W x H)

11.9 x 7.5 in (30.3 x 19.0 cm)

Diagonal Size

14.1 in (35.7 cm)

Surface Treatment

Anti-glare

Number of Colors

Up to 16M

Contrast Ratio

Pixel Resolution

Viewing Angle

300:1 (typical)

Refresh Rate

60 Hz

Brightness

200 nit (typical)

Pitch

0.237 mm

Format

1280 x 800

Configuration

RGB Stripe

Backlight

CCFL

PPI

107

±30° Horizontal, ±10° Vertical (minimum)

30/30/20/10 (Left/Right/Down/Up) (minimum) or

45/45/35/25 (Left/Right/Down/Up) (typical)



Technical Specifications

14.1-inch WXGA **BrightView**

Active Area (W x H) 11.9 x 7.5 in (30.3 x 19.0 cm)

Diagonal Size 14.1 in (35.7 cm)

Surface Treatment BrightView Number of Colors Up to 16M Contrast Ratio 300:1 (typical)

Refresh Rate 60 Hz

Brightness 200 nit (typical)

Pixel Resolution Pitch 0.237 mm

> 1280 x 800 **Format**

Configuration **RGB** Stripe

Backlight CCFL PPI 107

Viewing Angle ±30° Horizontal, ±10° Vertical (minimum)

30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical)

14.1-inch WXGA+ antiglare

Active Area (W x H)

11.9 x 7.5 in (30.3 x 19.0 cm)

Diagonal Size

14.1 in (35.7 cm)

Surface Treatment Number of Colors Contrast Ratio

Anti-glare Up to 16M 300:1 (typical)

Refresh Rate

60 Hz 200 nit (typical)

Pixel Resolution

Brightness

Pitch 0.210 mm

1440 x 900 **Format** Configuration

CCFL

RGB Stripe

Backlight PPI 121

 $\pm 30^{\circ}$ Horizontal, $\pm 10^{\circ}$ Vertical (minimum) Viewing Angle

30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical)

Hard Drives

Technical Specifications

320 GB 7200 rpm SATA

Hard Drive

Drive Weight 0.25 lb (115 g)

Capacity 320 GB

 Height
 0.37 in (9.5 mm)

 Width
 2.75 in (70 mm)

Interface ATA-8, SATA 2.6, 3.0 Gb/s, NCQ

Transfer Rate Synchronous (maximum) 100 MB/s (Drive Capability)

Seek TimeSingle Track1.5 ms(typical reads, including settling)Average11 msMaximum22 ms

Rotational Speed 7200 rpm Logical Blocks 625,142,448

Operating Temperature 32° to 140° F (0° to 60° C) [case temp]

Features ATA Security

250 GB 7200 rpm SATA Drive Weight

Hard Drive

Orive Weight 0.25 lb (115 g)

Capacity 250 GB

 Height
 0.37 in (9.5 mm)

 Width
 2.75 in (70 mm)

Interface ATA-8, SATA 2.6, 3.0 Gb/s, NCQ

Transfer Rate Synchronous (maximum) 100 MB/s (Drive Capability)

Seek TimeSingle Track1.5 ms(typical reads, including settling)Average11 msMaximum22 ms

Rotational Speed 7200 rpm Logical Blocks 488,397,168

Operating Temperature 32° to 140° F (0° to 60° C) [case temp]

Features ATA Security

Technical Specifications

160 GB 7200 rpm SATA

Hard Drive

Drive Weight 0.25 lb (115 g)

Capacity 160 GB

 Height
 0.37 in (9.5 mm)

 Width
 2.75 in (70 mm)

Interface ATA-8, SATA 2.6, 3.0 Gb/s, NCQ

Transfer Rate Synchronous (maximum) 100 MB/s (Drive Capability)

Seek TimeSingle Track1.5 ms(typical reads, including settling)Average11 msMaximum22 ms

Rotational Speed 7200 rpm Logical Blocks 312,581,808

Operating Temperature 32° to 140° F (0° to 60° C) [case temp]

Features ATA Security

500 GB 5400 rpm SATA Drive Weight

Hard Drive

Orive Weight 0.22 lb (101 g)

Capacity 500 GB

 Height
 0.37 in (9.5 mm)

 Width
 2.75 in (70 mm)

Interface ATA-8, SATA 2.6, 3.0 Gb/s, NCQ

Transfer Rate Synchronous (maximum) 100 MB/s (Drive Capability)

Seek TimeSingle Track3 ms(typical reads, including
settling)Average13 msMaximum24 ms

Rotational Speed 5400 rpm Logical Blocks 976,773,168

Operating Temperature 32° to 140° F (0° to 60° C) [case temp]

Features ATA Security

Technical Specifications

320 GB 5400 rpm SATA

Hard Drive

Drive Weight 0.22 lb (101 g)

320 GB Capacity

Height 0.37 in (9.5 mm) Width 2.75 in (70 mm)

Interface ATA-8, SATA 2.6, 3.0 Gb/s, NCQ

Transfer Rate Synchronous (maximum) 100 MB/s (Drive Capability)

Seek Time Single Track 3 ms (typical reads, including Average 13 ms settling) 24 ms

Maximum 5400 rpm **Rotational Speed**

625,142,448 Operating Temperature 32° to 140° F (0° to 60° C) [case temp]

Features ATA Security

Logical Blocks

250 GB 5400 rpm SATA Drive Weight

Hard Drive

0.22 lb (101 g)

250 GB Capacity

Height 0.37 in (9.5 mm) Width 2.75 in (70 mm)

Interface ATA-8, SATA 2.6, 3.0 Gb/s, NCQ

Transfer Rate Synchronous (maximum) 100 MB/s (Drive Capability)

Seek Time Single Track 3 ms (typical reads, including Average 13 ms settling) 24 ms Maximum

Rotational Speed 5400 rpm Logical Blocks 488,397,168

Operating Temperature 32° to 140° F (0° to 60° C) [case temp]

Features ATA Security

Technical Specifications

160 GB 5400 rpm SATA

Hard Drive

Drive Weight 0.22 lb (101 g) 160 GB Capacity

Height 0.37 in (9.5 mm) Width 2.75 in (70 mm)

Interface ATA-8, SATA 2.6, 3.0 Gb/s, NCQ

Transfer Rate Synchronous (maximum) 100 MB/s (Drive Capability)

Seek Time Single Track 3 ms (typical reads, including Average 13 ms settling) 24 ms Maximum

5400 rpm **Rotational Speed**

312,581,808 Operating Temperature 32° to 140° F (0° to 60° C) [case temp]

Features ATA Security

Logical Blocks

120 GB 5400 rpm SATA Drive Weight

Hard Drive

0.22 lb (101 g)

120 GB Capacity

Height 0.37 in (9.5 mm) Width 2.75 in (70 mm)

Interface ATA-8, SATA 2.6, 3.0 Gb/s, NCQ

Transfer Rate Synchronous (maximum) 100 MB/s (Drive Capability)

Seek Time Single Track 3 ms (typical reads, including Average 13 ms settling) 24 ms Maximum

Rotational Speed 5400 rpm Logical Blocks 234,441,648

Operating Temperature 32° to 140° F (0° to 60° C) [case temp]

Features ATA Security

Removable Storage Drives



Technical Specifications

DVD-ROM Drive Access Times Random <116 ms CD (typical)

<125 ms DVD (typical)

Max Data Transfer Rate 24X CD-ROM Up to 3,600 KB/s

Transfer Mode UDMA Mode 5 Interface Gen 1 SATA

Supported Media (read) CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED

MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R,

DVD+RW, DVD-RAM

Supported Media (write)

Max Media Capacity

(read)

None 4.7 GB

Transport Tray Loading

DVD/CD-RW Combo Drive Access Times Random <110 ms CD (typical)

<130 ms DVD (typical)

Max Data Transfer Rate 24X CD-ROM Up to 3,600 KB/s

8X DVD Up to 10,800 KB/s
24X CD-R Up to 3,600 KB/s
24X CD-RW Up to 3,600 KB/s

Transfer Mode UDMA Mode 5 Interface Gen 1 SATA

Supported Media (read) CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED

MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R,

DVD+RW

Supported Media (write)

Max Media Capacity

(read)

CD-R, CD-RW

8.5 GB

Max Media Capacity

(write)

700 MB

Transport Tray loading

Technical Specifications

DVD+/-RW SuperMulti	Access Times	Random	<175 ms CD (typical)
DL LightScribe Drive			<230 ms DVD (typical)

Max Data Transfer Rate 24X CD-ROM Up to 3,600 KB/s

> 8X DVD Up to 10,800 KB/s 24X CD-R Up to 3,600 KB/s 16X CD-RW Up to 2,400 KB/s 8X DVD+R Up to 10,800 KB/s 4X DVD+RW Up to 5,400 KB/s 8X DVD-R Up to 10,800 KB/s 4X DVD-RW Up to 5,400 KB/s 2.4X DVD + R(9)Up to 2,700 KB/s 5X DVD-RAM Up to 6,750 KB/s

Transfer Mode UDMA Mode 5 Interface Gen 1 SATA

Supported Media (read) CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED

> MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R,

DVD+RW, DVD-RAM

CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, Supported Media (write)

> LightScribe 8.5 GB

Max Media Capacity

(read)

Max Media Capacity

(write)

8.5 GB

Transport Tray Loading

Security

HP Fingerprint Sensor Mobile Voltage 3.0V-3.6V Single Supply (optional)

Operation

Operating Temperature 32° - 158°F (0° - 70°C)

Current Consumption @

3.3V

Less than 70 mA peak imaging and scrolling

Less than 25 mA hardware finger detection

Advanced Power Management

High-Rate Image Capture Up to 240 image frames /sec

ESD Resistance IEC 61000-4-2 Level 4 (±15KV)

Detection Matrix 192 x 16 Pixels

9.7 mm x 0.81 mm

500 ppi High-Resolution Images



Technical Specifications

Audio

Hardware Implementation ADI1981HD High Definition CODEC

Touch-Sensitive Volume

Controls

Volume up, volume down, and mute

Full Duplex Yes Stereo Microphone In Headphone/Line Out Stereo

Integrated Microphone Yes, dual-microphone array when equipped with optional webcam

Audio Output Quality 20 Hz - 20 kHz Frequency Response

> Signal to Noise Ratio $> 85 \, dB$ Total Harmonic Distortion 0.01% Noise Floor -110 dB Play/Record Sampling 8 kHz - 48kHz

Rate(s)

DAC 16, 20 or 24-bit **ADC** 16 or 20-bit

Integrated Stereo **Speakers**

Power Rating Impedance

2 Watts 4 Ohms

Communications

Integrated Broadcom NetLink Gigabit Ethernet

(10/100/1000 NIC) BCM5787M

Ethernet Features

10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)

100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-

30)

1000 Mbit/s operation (1000BASE-T; IEEE 802.3z and 802.3ab; IEEE

802.3 clauses 34-42)

Auto-Negotiation (Automatic Speed Selection)

Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100

Mbit/s

IEEE 802.1p QoS (Quality of Service) Support

IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)

ACPI compliant -- multiple power modes Power Management

Situation-sensitive features reduce power consumption

Performance Features

TCP/IP/UDP Checksum Offload (configurable)

Manageability Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft

Wake-Up Frame); Wake-on-LAN from off (Magic Packet only)

PXE 2.1 Remote Boot

Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x,

clause 30))

Comprehensive diagnostic and configuration software suite



Technical Specifications

Interface PCI Express x1

NIC Device Driver Name Broadcom NetLink Gigabit Ethernet

V.92 56K Data/Fax Modem

Form Factor MDC 1.5 Daughtercard **Power Management** APM Revision 1.2, ACPI

Support

Approvals/ UL, CSA, NEMKO, CCIB, Industry Canada, FCC Part 68, CTR21, FCC Part Certifications 15 Class B, Canadian ICES-003 Class B, C.I.S.P.R.22, Australian ACA, CE

Mark, Other Countries

Data Mode Capabilities V.92 data

> V.8bis V.80

V44, V.42bis, MNP5 (Compression) V.42 (LAPM, MNP2-4) (Error Correction)

Optional symbol rates:

2800, 3429

Asymmetric Symbol rates

Synchronous primary channel data signaling rates:

3600, 31200

Automatic rate re-negotiation

V.34 V.32bis V.32 V.23 V.22bis V.22 V.21 Bell 212A Bell 103J

Fax Mode Capabilities TIA/EIA-578-B (Class 1)

T.30, T.4 (Group 3)

V.17 V.29 V.27ter V.21 Channel 2

Command Set V.250 (Partial)

TIA-602

Identification: +GMI, +GMM, +GMR Port control: +IPR, +ICF, +IFC, +ILRR

Modulation: +MS, +MR, +MA

Error control: +ES, +ER, +EB, +ESR, +ETBM

Data compression: +DS, +DR

V.251



Technical Specifications

HP un2400 EV-DO/HSPA Mobile Broadband Module Technology/Operating

Bands

GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS),

1900MHz (PCS)

UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 1900MHz (UTRA FDD Band II), 850MHz (UTRA FDD Band V) 1xEVDO/1xRTT with receive diversity: 850MHz (Band ClassO-Cell),

1900MHz (Band Class 1-PCS)

Wireless Protocol

Standards

GSM/GPRS/EDGE: Class B, Multi-slot operation, coding schemes CS1 –

CS4 and MSC1 – MSC9.

UMTS/WCDMA: Release 99 and Release 5

CDMA: 1xEVDO Release 0 and Release A, IS-95A, IS-95B, IS-2000

Wireless Parametric

Standards

Meets or exceeds TIA/EIA IS-98-D

Maximum Data Rates UMTS (HSPA) – 7.2 Mbps (Download), 2.0 Mbps (Upload)

CDMA (EVDO Release A) – 3.1 Mbps (Download), 1.8Mbps (Upload)

Maximum Output Power GSM/GPRS/EDGE: 32dBm (+/-1)

WCDMA: 24dBm (+/-1) CDMA: 24dBm (+/-1)

Maximum Power Consumption

2500mA (peak); 1000mA (average)

Power Consumption,

Sleep Mode

5 mA

Power Management USB selective suspend

Integrated notebook wireless button

Antenna Type Dual high efficiency 5 band antennae with spatial diversity, mounted in the

display enclosure

Form Factor PCI-Express MiniCard

Weight 11.5 g

Dimensions (Length x Width x Thickness)

2.01 x 1.18 x 0.18 in (51 x 30 x 4.5 mm)

Voltage, Operating 3.3v +/- 10%

Temperature, Operating –22° to 140° F (–30° to 60° C) (full RF performance) (from TIA/EIA/IS-98-D) –22° to 167° F (–30° to 75° C) (reduced RF performance)

Temperature, Non- -40° to 185° F (-40° to 85° C)

operating, 96 hours (from MIL-STD 202 Method

108)

Humidity, Non-operating 85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)

Configuration Utilities HP Connection Manager

LED Off – Radio Off;

Solid LED On - Radio On

Intel WiFi Link 5100 Wireless LAN Standards IEEE 802.11a

IEEE 802.11b IEEE 802.11g

IEEE 802.11n (draft 2.0)*



Technical Specifications

* The specifications for 802.11n draft 2.0 are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11n WLAN devices. In countries where n draft 2.0 is not allowed, this capability is not enabled.

enubleu,

Interoperability Wi-Fi certified (802.11abg only)

Cisco Compatible Extensions Program compliant (802.11abg only) with

Microsoft Windows Vista and XP (details at: http://www.hp.com/go/notebooks/WLAN)

Tested with wireless access points from several major manufacturers (details at: http://www.hp.com/go/notebooks/WLAN/draft-n)

Frequency Band Antenna Structure

Data Rates

1 transmit; 2 receive (1x2) 802.11b: 1, 2, 5.5, 11 Mbps

2.4 GHz and 5 GHz

802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps

802.11n (draft): 66 possible data rates, ranging from 6 Mbps to 300 Mbps, depending on the combination of Bandwidth, Modulation Coding Scheme, and Guard Interval used, as defined in IEEE 802.11n (draft) specification

Modulation Direct Sequence Spread Spectrum

DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM

Security¹ Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES

(support for key sizes of 128, 192, and 256 bits), 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST.

Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program

Version 4) with Microsoft Windows Vista and XP only.

Sub-channels Multinational support with frequency bands and channels compliant to local

regulations.

Media Access Protocol CSMA/CA (Collision Avoidance) with ACK

Network Architecture Ad-hoc (

Ad-hoc (Peer to Peer)

Models Infrastructure (Access Point Required)

Roaming IEEE 802.11 compliant roaming between access points

Output Power (for CCK)² 15 dBm Output Power (for OFDM; 15 dBm

power varies by data

rate)2

Power Consumption Transmit: 2.3 Watts (average, with one spatial streams)

Receive: 1.9 Watts (average with two receive chains)

Idle mode³: 30 mW (average) Radio off: 20 mW (max)

Power Management ACPI compliant power management

802.11 compliant power saving mode

Receiver Sensitivity⁴ 300 Mbps: -68 dBm, 54 Mbps: -74 dBm, 6 Mbps: -90 dBm

Antenna Connections 3 U.FL type connectors, 50 ohm nominal impedance

Range 802.11 a – Typical 600 feet – Outdoor Open Area

(@6 Mbps) 150 feet – Indoor, Office environment



Technical Specifications

802.11 b – Typical
(@1 Mbps)

1200 feet – Outdoor Open Area
300 feet – Indoor, Office environment
1200 feet – Outdoor Open Area
(@1 Mbps)

1200 feet – Outdoor Open Area
300 feet – Indoor, Office environment

Form Factor PCI-Express MiniCard

Weight 0.013 lb (6 g)

Dimensions 0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)

Operating Voltage 3.3V +/- 9%, 1.5V +/- 5%

Temperature Operating 32° to 176° F (0° to 80° C)
Non-operating -40° to 176° F (-40° to 80° C)

Operating 10% to 90% (non-condensing)
Non-operating 5% to 90% (non-condensing)

Altitude Operating 0 to 10,000 ft (3,048 m)

Non-operating 0 to 50,000 ft (15,240 m)

Configuration Utility⁵ Microsoft Windows XP

Choice of Configuration Utility:

• Microsoft Windows XP Wireless Network Connection Manager

 Intel PROSet for Microsoft Windows XP (required for Cisco Compatible Extensions support)

Microsoft Windows Vista

- Microsoft Windows Vista Wireless Network Connection Manager.
- Intel IHV extensions for Windows Vista available to support Cisco Compatible Extensions.

LED Activity

Humidity

LED Off - Radio OFF; Solid LED On - Radio ON

- 1. Check latest software/driver release for updates on supported security features.
- 2. Maximum output power may vary by country according to local regulations.
- 3. In Power Save Polling mode and on battery power.
- 4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
- WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista.

Broadcom 4312G 802.11b/g WiFi Adapter Wireless LAN Standards IEEE 802.11b

IEEE 802.11g

Interoperability Wi-Fi certified (802.11abg only)

Cisco Compatible Extensions Program compliant (802.11abg only) with

Microsoft Windows Vista and XP (details at: http://www.hp.com/go/notebooks/WLAN)

Tested with wireless access points from several major manufacturers

(details at: http://www.hp.com/go/notebooks/WLAN/draft-n)

Frequency Band 2.4 GHz



Technical Specifications

Data Rates 802.11b: 1, 2, 5.5, 11 Mbps

802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps

Modulation Direct Sequence Spread Spectrum

DBPSK, DQPSK, CCK, OFDM

Security¹ Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES,

802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-

MSCHAPv2, LEAP, EAP-FAST.

Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program

Version 4) with Microsoft Windows Vista and XP only.

Sub-channels Multinational support with frequency bands and channels compliant to local

regulations.

Media Access Protocol CSMA/CA (Collision Avoidance) with ACK

Network Architecture

Ad-hoc (Peer to Peer)

Models

Infrastructure (Access Point Required)

Roaming IEEE 802.11 compliant roaming between access points

Output Power (for CCK)² 17 dBm Output Power (for OFDM; 15 dBm

power varies by data

rate)2

Power Consumption Idle associated: 250 mW

Idle unassociated: 150 mW Transmit: 2.0 W (max) Receive: 2.0 W (max)

Power Management ACPI compliant power management

802.11 compliant power saving mode

Receiver Sensitivity³ 54 Mbps: -71 dBm, 11 Mbps: -85 dBm , 1 Mbps: -95 dBm

Antenna type High efficiency dual band antenna with spatial diversity, mounted in the

display enclosure

Range 802.11 b - Typical 1200 feet - Outdoor Open Area

(@1 Mbps) 300 feet – Indoor, Office environment 802.11 g – Typical 1200 feet – Outdoor Open Area

(@1 Mbps) 300 feet – Indoor, Office environment

Form Factor PCI-Express MiniCard

Weight 0.026 lb (12 g)

Dimensions 0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)

Operating Voltage 3.3v +/- 10%

Temperature Operating 14° to 149° F (–10° to 65° C)

Non-operating -40° to 176° F (-40° to 80° C)

Humidity Operating 10% to 90% (non-condensing)
Non-operating 5% to 95% (non-condensing)

Altitude Operating 0 to 10,000 ft (3,048 m)

Non-operating 0 to 50,000 ft (15,240 m)

Configuration Utility⁴ Microsoft Windows XP

Choice of Configuration Utility:



Technical Specifications

- Microsoft Windows XP Wireless Network Connection Manager
- Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)

Microsoft Windows Vista

- Microsoft Windows Vista Wireless Network Connection Manager
- Broadcom IHV extensions for Windows Vista available to support Cisco Compatible Extensions.

LED Activity

LED Off - Radio OFF; Solid LED On - Radio ON

- 1. Check latest software/driver release for updates on supported security features.
- 2. Maximum output power may vary by country according to local regulations.
- 3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
- 4. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista.

Broadcom 4322AGN 802.11a/b/g/draft-n WiFi Adapter

Wireless LAN Standards IEEE 802.11a

IEEE 802.11b IEEE 802.11g

IEEE 802.11n (draft 2.0)

Interoperability Wi-Fi certified (802.11abg only)

Cisco Compatible Extensions Program compliant (802.11abg only) with

Microsoft Windows Vista and XP (details at: http://www.hp.com/go/notebooks/WLAN)

Tested with wireless access points from several major manufacturers (details at: http://www.hp.com/go/notebooks/WLAN/draft-n)

Frequency Band 2.4 GHz and 5 GHz

Data Rates 802.11b: 1, 2, 5.5, 11 Mbps

802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps

802.11n (draft): 6, 6.5, 9, 12, 13, 13.5, 18, 19.5, 24, 26, 27, 36, 39, 40.5, 48, 52, 54, 58.5, 65, 78, 81, 104, 108, 117, 121.5, 130, 135,

162, 216, 243, 270, 300 Mbps

Frequency Support 20 MHz: 2.4 GHz and 5 GHz bands

40 MHz: 2.4 GHz and 5 GHz band

Modulation Direct Sequence Spread Spectrum

DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM

Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES,

802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-

MSCHAPv2, LEAP, EAP-FAST.

Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program

Version 4) with Microsoft Windows Vista and XP only.

Sub-channels Multinational support with frequency bands and channels compliant to local

regulations.



Technical Specifications

Media Access Protocol CSMA/CA (Collision Avoidance) with ACK

Network Architecture Ad-hoc (Peer to Peer)

Models Infrastructure (Access Point Required)

Roaming IEEE 802.11 compliant roaming between access points

Output Power (for CCK)² 17 dBm Output Power (for OFDM; 15 dBm

power varies by data

rate)2

Idle associated: 250 mW Power Consumption

Idle unassociated: 150 mW

Transmit/Receive 20 MHz channel: 2.0 W (max) Transmit/Receive 40 MHz channel: 2.0 W (max)

Power Management ACPI compliant power management

802.11 compliant power saving mode

Receiver Sensitivity³ 270 Mbps: -66dBm, 162 Mbps: -72 dBm, 54 Mbps: -72 dBm, 11 Mbps: -

85 dBm , 1 Mbps: -94 dBm

High efficiency dual band antenna with spatial diversity, mounted in the Antenna type

display enclosure

802.11 a - Typical 600 feet – Outdoor Open Area Range

> (@6 Mbps) 150 feet - Indoor, Office environment 802.11 b - Typical 1200 feet – Outdoor Open Area 300 feet - Indoor, Office environment (@1 Mbps) 802.11 g - Typical 1200 feet – Outdoor Open Area

> 300 feet - Indoor, Office environment (@1 Mbps)

Form Factor PCI-Express MiniCard

Weight 0.026 lb (12 g)

0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm) **Dimensions**

Operating Voltage 3.3v +/- 10%

14° to 149° F (-10° to 65° C) **Temperature** Operating

-40° to 176° F (-40° to 80° C) Non-operating

10% to 90% (non-condensing) Humidity Operating 5% to 95% (non-condensing) Non-operating

Altitude 0 to 10,000 ft (3,048 m) Operating Non-operating 0 to 50,000 ft (15,240 m)

Configuration Utility⁴ Microsoft Windows XP

Choice of Configuration Utility:

Microsoft Windows XP Wireless Network Connection Manager

Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)

Microsoft Windows Vista

Microsoft Windows Vista Wireless Network Connection Manager

Broadcom IHV extensions for Windows Vista available to support

Cisco Compatible Extensions.

LED Activity LED Off - Radio OFF; Solid LED On - Radio ON



Technical Specifications

- 1. Check latest software/driver release for updates on supported security features.
- 2. Maximum output power may vary by country according to local regulations.
- 3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
- 4. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista.

HP Integrated Module with Bluetooth Wireless Technology

Bluetooth Specification 2.0 Compliant

Dimensions 1.02 x 0.55 x 0.22 in (26 x 14 x 5.7 mm)

Frequency Band 2402 to 2480 MHz

Number of Available 79

Channels

79 (1 MHz) available channels

Data Rates and 3 Mbps data rate; throughput up to 2.17 Mbps

Throughput Synchronous Connection Oriented links up to 3, 64 kbps, voice channels

Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or

1306.9 kbps symmetric

Transmit Power -6 dBm to 4 dBm (Bluetooth Class II)

Receiver Sensitivity Better than -80 dBM at 0.1 % raw bit error rate

Power Consumption Peak (Tx) 264 mW

Peak (Rx) 231 mW Sleep <1 mW

Antenna Internally integrated within module

Range Up 33 ft (10 m)
Electrical Interface USB 2.0 compliant

Microsoft Windows Plug and Play compliant

Bluetooth Software

Supported

Broadcom Bluetooth for Windows

Microsoft Windows XP Bluetooth Software

Link Topology Point to Point, Multipoint Pico Nets up to 7 slaves

Security Full support of Bluetooth Security Provisions

Power Management Microsoft Windows ACPI, and USB Bus Support

Self configurable to optimize power conservation in all operating modes,

including Standby, Hold, Park, and Sniff

Certifications All necessary regulatory approvals for supported countries, including:

FCC (47 CFR) Part 15C, Section 15.247 & 15.249

ETS 300 328, ETS 300 826 Low Voltage Directive IEC950

UL, CSA, and CE Mark

Temperature Operating -4° to 158° F (-20° to 70° C)

Non-operating -40° to 176° F (-40° to 80° C)

Humidity Operating 10% to 90%

Non-operating 5% to 95%

Technical Specifications

Altitude Operating 15,000 ft (4,572 m)

Non-operating 40,000 ft (12,192 m)

Bluetooth Profiles Supported (with Bluetooth for Windows 4.0 software)

Serial Port Profile (SPP)*
Dial-Up Networking (DUN)*

Congris Chiact Evaluate Profile (COED

Generic Object Exchange Profile (GOEP)

Object Push Profile (OPP)*
File Transfer Profile (FTP)
Synchronization Profile (SYNC)

Hard Copy Cable Replacement (HCRP)*
Personal Area Networking Profile (PAN)*
Human Interface Device Profile (HID)*

FAX Profile (FAX)

Basic Imaging Profile (BIP) Headset Profile (HSP) Hands Free Profile (HFP)

Advanced Audio Distribution Profile (A2DP)

Eco Data Eco-Label Certifications

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- US Energy Star
- Taiwan Green Mark
- IT ECO declaration
- EPEAT GOLD

System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the Convertible Mini tower Desktop model is based on a "Typically Configured Notebook"

Energy Consumption	115 VAC	230 VAC	100 VAC
Normal Operation	9.2 W	10.4 W	9 W
Sleep (Energy Star low power mode)	1.61 W	1.61 W	1.58 W
Off	0.68 W	0.77 W	0.71 W
Heat Dissipation*	115 VAC	230 VAC	100 VAC
Normal Operation	31 BTU/hr	36 BTU/hr	31 BTU/hr
Sleep	6 BTU/hr	6 BTU/hr	5 BTU/hr
Off	2 BTU/hr	3 BTU/hr	2 BTU/hr

^{*} Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

This product is in compliance with US executive order 13221, WOL (wake on LAN) disabled.



^{*} indicates the profile is also supported by Microsoft Windows XP SP2

Technical Specifications

Declared Noise Emissions

(in accordance with ISO 7779 and ISO 9296)

	Sound Power	Sound Pressure
	(LWAd, bels)	(LpAm, decibels)
ldle	3.2	28
Operation	3.3	29

Batteries

This product complies with ISO standards:

- EU Directive 91/157/EEC
- EU Directive 93/86/EEC
- EU Directive 98/101/EEC

Batteries used in the product do not contain:

- Mercury greater than 5ppm by weight
- Cadmium greater than 10ppm by weight
- Lead greater than 4000 ppm by weight.

The battery type and chemistry used in the product is:

CR2032, Coin cell, Lithium High capacity Lithium-lon battery

Additional information:

This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive -2002/95/EC.

This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.

This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).

This product is in compliance with the IEEE 1680 (EPEAT) standard at the GOLD level, see: www.epeat.net

Keyboard complies with ISO standard: ISO 9995, EN 29241-4, and ISO/IEC 15412

Input devices of this product comply with ISO 9241, part 9.

Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.

This product contains 0% recycled materials (by wt.)

This product is greater than 96.1% recycle-able when properly disposed of at end of life.

Packaging Materials

• External:

o CANON bags – several layers

15 g



Technical Specifications

- Internal:
 - O EPE-Expanded Polyethylene

80 g

O Corrugated Carton & Cardboard & misc.

685 g

- The CANON bags several layers packaging material is made from 100% recycled content.
- The EPE-Expanded Polyethylene packaging material is made from 100% recycled content.
- The Corrugated carton & Cardboard & misc packaging materials contains 100% recycled content.

HP follows these guidelines to decrease the environmental impact of product packaging:

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

Material Usage

This product does not contain any of the following substances in excess of regulatory limits (for reference of these limits please refer to the HP General Specification of the Environment

(http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.



Technical Specifications

• Radioactive Substances

• Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO) Nickel finishes that release greater than 0.5 micro-grams/cm^2/week, measured according to EN 1811:1998, are not used on any product surface designed to be frequently handled or touched by users.

End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Hewlett-Packard Corporate Environmental Information

For more information about HP's commitment to the environment: Global Citizenship Report

http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html

Environment website

http://www.hp.com/environment

Eco-label certifications

http://www.hp.com/hpinfo/globalcitizenship/environment/

productdesign/ecolabels.html ISO 14001 certificates:

http://www.hp.com/hpinfo/globalcitizenship/environment/

operations/envmanagement.html

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